

**METHOD FOR MANUFACTURING SEMICONDUCTOR DEVICES AND
INTEGRATED CIRCUIT CAPACITORS WHEREBY DEGRADATION OF
SURFACE MORPHOLOGY OF A METAL LAYER FROM THERMAL
OXIDATION IS SUPPRESSED**

Abstract of the Disclosure

A method of manufacturing a semiconductor device having a metal layer is provided in which variation of surface morphology resulting from thermal oxidation is suppressed. The metal layer is pretreated at a first temperature so that an upper surface of the metal layer is changed into a mixed phase of metal and oxygen and
5 becomes substantially resistant to further oxidation during a subsequent heating at a higher temperature in an oxygen atmosphere.